

## **REMARKS**

### **1. Status of the Claims**

Claims 1-12 are pending. Claim 12 is new. Claims 1 and 11 are independent. Claims 1-11 were not amended.

### **2. Rejection Based on 35 U.S.C. § 103(a)**

Claims 1-11 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Heitritter et al. (U.S. Patent No. 5,824,355) in view of Lanter et al. (U.S. Patent No. 5,540,932). More specifically, in the Office Action, Heitritter is cited for teaching all of the currently claimed method limitations, except for the addition of fat. Lanter is cited for teaching the addition of fat. Applicants respectfully disagree.

#### *Claims 1-10*

As a preliminary matter, the claims are not obvious because neither reference, alone or in combination teaches all of the limitations of the currently pending claims. The differences between currently pending claim 1 and Heitritter include the following. Currently pending claim 1 is directed towards “high energy ruminant feed,” while claim 1 of Heitritter is directed towards “a cooked protein protected ruminant feed.” The currently pending claims require “15 to about 50 percent by weight water and from about 1 to about 15 percent by weight fat to give a moist refatted meal feed,” while claim 1 of Heitritter requires “about 30 to about 50 wt. %” of water. Currently pending claim 1 requires “about 1 to about 15 percent by weight fat to give a moist refatted meal feed,” while Heitritter does not mention adding fat to the feed.

The Lanter reference does not cure these deficiencies. While Lanter discloses “extruded animal feed nuggets... containing about 1.0 to 6.0 wt % of added fat” (See the abstract) it does not disclose “15 to about 50 percent by weight water and from about 1 to about 15 percent by weight fat to give a moist refatted meal feed,” as required by the currently pending claims. Since the combined references do not teach all of the claimed limitations, claim 1, and all claims that depend from it are not obvious.

Claims 1 to 10 are also not obvious because combining the method of Lanter, with that of Heitritter, would not lead the person of skill in the art to the subject matter of claims 1 to 10. As described in the abstract, the method of Lanter is “The animal feed nugget of this invention is prepared by a method comprising the steps of:

- A. plasticizing a blend of at least one protein-containing ingredient, added fat, sulfur, if present, and water in an extruder,
- B. extruding the plasticized blend to form an animal feed nugget, and
- C. drying the extruded nugget to a water content of less than about 12 wt %, based on the total weight of the nugget.”

At Col. 3, line 40 to Col. 4, line 11, Lanter describes the preparation of the nuggets. This section of Lanter also makes clear that in addition to water, Lanter also adds steam to the extruder: “Steam is also added to the extruder to increase the temperature of the material...and/or to raise the moisture content of the mixture.” Id. The currently pending application does not mention the use of steam.

Combining the method of Heitritter with the method of Lanter would be difficult, because the methods conflict. Applicants submit that the only way the methods can be combined to afford the currently claimed invention is via hindsight reconstruction. Combining the references would afford a method of 1) plasticizing the oil seed meal with hulls, the fat, sulfur (if present) and water, which includes steam, in an extruder - if Lanter is followed; or 2) mixing the oil seed meal with hulls and then adding the water and fat, if Heitritter is followed, thereby affording a combined feed solids mixture having a hull/oil seed meal weight ratio of either from about 1:100 to about 10:100 (if Heitritter is followed). Lanter does not discuss or otherwise mention the ratio of the hulls to the oil seed meal; Lanter merely states that 90 to 99 wt % of at least one protein-containing ingredient (such as soy bean meal) is present. See Col. 2, lines 1 to 49.

The plasticized blend or the mixture would then be 1) extruded at a temperature above 100°C, as described in Lanter (see Col. 3, line 64 to Col. 4, line 10); or 2) cooked at a temperature of at least 200 °C, as described in Heitritter. The extrudate or cooked material would then be dried. Lanter would dry the extrudate to less than about 12 weight % moisture (see Col. 2, line 16), while Heitritter would dry the material so that it had “from about 12 to about 16 wt. %.” Clearly there is conflict between the methods of Lanter and Heitritter. Applicants fail to see how combining these references make the currently pending claims obvious – unless hindsight was used.

Applicants further submit the claims are not obvious because the Applicants have surprisingly and unexpectedly discovered that the method of preparing the mixture has a significant impact on the effect the fat has on the composition. Heitritter teaches cooked feeds that are less digestible in the rumen. Lanter teaches that fat, in combination with sulfur increases dry matter disappearance and protein disappearance (see tables 3, 4, and 7) in extruded feeds.

Lanter also teaches (3 out of 4 examples, *i.e.*, Examples B, E, and F) that extruded feed containing fat has less ruminal escape than extruded feed without fat. These examples teach against the stated purpose of the Lanter application “[increasing] the release of beneficial nutrients in the abomasums or subsequent digestive tract.” See Col. 2, lines 18-21. As a result, one of ordinary skill in the art, combining these references would expect to generate a feed that is even more digestible in the rumen and decreases rumen escape. Contrary to this expectation, in the currently claimed invention, adding fat does not decrease rumen escape. In the currently pending application, tables II and III show adding fat does not affect dry matter bypass, ruminally undegradable protein (also called bypass protein level or RUP), acid detergent insoluble-crude protein (ADI-CP). See Example B, which corresponds to Heitritter and Examples C and D, which have added fat. See also Table VII, where dry matter bypass, RUP, and ADI-CP are similar for Examples K (like Heitritter, no fat) and Examples L and M, both of which have added fat. This is unexpected because Examples B, E, and F of Lanter teach to the contrary. Applicants submit that since Lanter teaches away from the currently claimed invention, there is no reason to combine the cited references. Thus, the currently pending claims are not obvious.

#### *Claim 11*

Independent claim 11 is similar to currently pending independent claim 1, in that claim 11 covers 1) soybean hull/soybean meal (rather than the generic “hull/oil seed” of claim 1) with a weight ratio of from about 3:100 to about 6:100 (in claim 1, the ratio is “about 1:100 to about 10:100”), 2) identifies the type of cooker (stacked), and 3) the type of dryer (rotating drum). Applicants submit that claim 11 is not obvious for the same reasons advanced for claims 1-10.

In light of the above, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1-11 under 35 U.S.C. § 103.

**CONCLUSION**

Applicants respectfully submit that all requirements of patentability have been met. Allowance of the claims and passage of the case to issue are therefore respectfully solicited.

Should the Examiner believe a discussion of this matter would be helpful, he is invited to telephone the undersigned at (312) 913-2114.

Respectfully submitted,

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